Generalized Exchange[1]

Peter Bearman
University of North Carolina at Chapel Hill

Generalized exchange, in which sections of a tribe exchange women in a cycle and thus guarantee social solidarity, was induced from models of the norms governing classificatory kinship systems. A blockmodel analysis of one aboriginal tribe yields sections that serve as marriage classes in a generalized exchange system, though the norms that govern kinship would fail to manifest, if followed, a cycle for exchange. Generalized exchange systems emerge from inequalities exogenous to the kinship system, specifically gerontocracy. Models of norms are weak predictors of actual exchange structures. Models of relations yield insight into the etiology of systems that build social solidarity from social exchange.

> When I was in my mother's womb, social structure seemed a simple thing. (Gang of Four)

INTRODUCTION

This article focuses on identifying the conditions under which social solidarity emerges from exchange relations. The empirical focus is on the observed behaviors of persons whose exchanges induce a stable social order. The setting (Groote Eylandt, an island off Australia), the persons (Aborigines), the language in which exchange is conducted (kinship), the relevant theoretical literature (classificatory kinship theory), and the values exchanged (women) are exotic for most sociologists. But many of the issues involved—the relationship between normative orders governing action and actual behaviors, the identification of micromechanisms that yield stable emergent structures, and the relationship between solidarity, exchange, and inequality—are central to problems we encounter in more familiar settings.

[1] Harrison White, Richard Simpson, Sally Falk Moore, Eric Leifer, Charles Lindholm, Gerald Marwell, John Paul Boyd, Roger Gould, Peter Blau, Ron Breiger, Douglas White, and the *AJS* reviewers provided helpful advice on earlier drafts. I owe special debts to Glenn Deane and Kate Stovel. Financial assistance from the National Science Foundation (SES-8008658), the Institute for Research in the Social Sciences, and the University Research Council at the University of North Carolina at Chapel Hill is gratefully acknowledged. Direct correspondence to Peter Bearman, Department of Sociology, University of North Carolina, Hamilton Hall, Chapel Hill, North Carolina 27599.

© 1997 by The University of Chicago. All rights reserved.
0002-9602/97/10205-0005$01.50

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

Models of Models and Models of Empirical Relations

Some deep theories about the nature of human society and the basis for human order have been advanced with classificatory kinship systems as referent (Homans 1962; Lévi-Strauss 1969). These theories are mainly derived from models of norms rather than models of actual social relations. The payoff has been the development of elegant models of exchange structures, which Lévi-Strauss and others argue yield social solidarity (Lévi-Strauss 1969; Ekeh 1974; Korn 1973; Uehara 1990; Yamagishi and Cook 1993). Yet the patterns of exchange studied and the solidarity outcomes theorized as their products tend to be *ideals,* not empirical realities. Because this article works with *tangible relational data,* it turns this tradition on its head and consequently yields some new insights.

Traditionally, kinship theory is derived from models of the normative rules governing marriage and descent in a society. In his classic statement, Lévi-Strauss (1969) argues that native norms provide a model of social structure. For Lévi-Strauss, the model is a grammar. Just as linguistic grammar is the structure of language that organizes the placement of types of words in sentences, the structure of kinship is the grammar that organizes the placement of people into social positions and the placement of sections (subsets of the population) in systems of exchange. Here Lévi-Strauss's argument is not subtle. It rests on the claim that the norms and rules articulated by natives, the grammar of assignments to social positions, are the social structure.[2] Thus it does not mean anything substantively if people fail to behave in the prescribed ways, that is, to act "ungrammatically." Just as many people speak improperly without the grammar of language being called into question, so it follows for Lévi-Strauss that people may act "irregularly" without the structure of kinship rules being called into question. To understand how exchange yields solidarity, structural anthropologists like Lévi-Strauss (1969) treat the grammar of kinship as the relevant social structure to be modeled.

The strategy outlined by Lévi-Strauss is powerful, but many observers have a hard time cutting through noise in the field to identify clear norms. For example, Worsley (1968, p. xxiv) notes, "I studied an Australian Aboriginal tribe [Groote Eylandt] where the knowledge of beliefs and rituals of 'their' culture on the part of most members was abysmal: as elementary and confused as that of the average Church of England congregation member." This sentiment is echoed in other studies of classificatory kinship systems, where a "correct" understanding of norms, prescriptions, culture, and ritual is seemingly held by only one or two informants. Such

[2] Lévi-Strauss (1963, p. 279), e.g., argues that "social structure has nothing to do with empirical reality, but with models which are built after it."

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

normative disorder might well be expected. Demographic constraints and contact with other societies with very different marriage systems combine to force natives to piece together scraps of various rhetorical fabrics in their search for an ideal normative structure coherent enough to regulate social relations and ensure social solidarity. Further, local solutions to classificatory "errors" are common, and these solutions are often at odds with the formal normative models developed to account for these systems (White 1963*a;* Rose 1960; Meggitt 1962). In real time (as opposed to genealogical time), classificatory kinship systems are very fluid. Perhaps quilt patterns can provide an analogy: although the formal "normative" pattern suggests a straightforward "nine patch," the local reality seems much more likely to yield a "drunkard's path," which, while nominally disordered, is in fact highly ordered.

In this article, I use a nonnormative strategy for identifying the structure of social exchange among a population of Aborigines living on Groote Eylandt in the early 1940s. That is, my model is not based on stated cultural norms regarding the exchange of women.[3] Instead, I model tangible, named kinship relations among residents of Groote Eylandt. The exciting finding is that, rather than disorder, I show that subsections of the tribe—induced on the basis of structural equivalence—appear as marriage classes that exchange women in a nearly perfect cycle.

Ethnographers living on Groote Eylandt found no clear *positive* prescriptions guiding marriage choice and, in fact, claimed that the native norms governing spouse choice on Groote Eylandt were so muddled that, if they were followed, the kin system that these Aborigines did recognize would be anarchic.[4] Despite this, on Groote Eylandt, the apparently free expression of marriage choices yields, in practice, increased constraint. Because of this, natives are bound by a supple form of social solidarity—chain generalized exchange.[5]

[3] By anthropological convention, I refer to marriages as the exchange of women. One could think about wife exchange as the exchange of brothers-in-law, but that is cumbersome. A problem is that wife exchange is not the same as the exchange of husbands, since men commonly have more than one wife. The reality of Groote Eylandt society is that girls (nine years old or so) were stolen, kidnapped, exchanged, or given away by older men (25–40 years old), so in this case the convention carries substantive meaning.

[4] Rose (1960) argues that the normative system as natives articulate it is largely chaotic and inconsistent. The normative demand of a classificatory kinship system is that the cumulation of roles be patterned across individuals. For the relation "male marries," there is no discernible pattern that governs kin classification beyond the exogamy restriction. This absence of pattern suggests anarchy.

[5] Other nearly perfect or perfect exchange cycles have been observed for exchanges of more traditional economic goods, e.g., the Kula ring system (Ziegler 1990; see Yamagishi and Cook [1993] for a recent review).

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

Modeling the actual structure of kinship relations reveals order in the pattern of marriages on Groote Eylandt, even though the natives do not recognize that women are exchanged in a cycle and even though the cycle that emerges bears no relationship to the cultural rhetoric claimed to govern their marriage choices. Furthermore, the "sections" that organize the exchange of women are not recognized culturally; they are nominally invisible to natives. Despite this, however, natives penalize those who violate this exchange structure, even though the various marriage choice norms they do recognize (and describe to ethnographers) have *not* been violated. These findings are unusual. Explaining how a system found predominantly in books appears in real life—where it is not supposed to—is the task of this article. In the next section, I explore the relevant theoretical issues, which set the stage for the empirical analyses that follow.

THEORETICAL ISSUES

Classificatory Kinship Systems and Structural Equivalence

Kinship is a social relationship. How others are understood as related to us depends, not on blood, but on the grammar of assignment.[6] This basic principle is evident in our own kinship system, where many individuals with quite different blood relations to us may all be classifed as "uncle," and even more clearly in Australian "section systems," where individuals with identical blood relations to a focal actor are often classified in different ways (Lévi-Strauss 1969).

Classificatory kinship systems, which appear simple, are very complex. They rest on an enormous expansion of the kinship grammar, well beyond the more familiar Western systems (White 1963*b*). The key to this expansion is structural equivalence. Actors fully interchangeable, in terms of public relations with all others, are structurally equivalent. Structurally equivalent actors share the same social position. As a result, they occupy the same roles and hold similar kinds of obligations and debts to similar others. In modern settings, pure equivalence is rare and must be socially engineered: the army private and the bishop in the Catholic Church are two obvious examples. In elementary (classificatory) kinship systems, brothers, like privates in the army, are theoretically interchangeable, that is, they ought to occupy the same relationship to all others.

Thus under the logic of classificatory kinship, an individual's father's

[6] A kinship grammar is a set of rules about the organization of kin terms. For an analogy, consider the grammar of friendship in high schools, which asserts that the friend (F) of a friend (F) is a friend (F), so $FF = F$. If we find for some students that friends of friends are not friends but enemies (E), so that $FF = E$, then the normative grammar still exists but is not observed empirically.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

brothers (uncles) would be classificatory fathers to him or her. It follows that mother's sisters (aunts) are classed as mother—they are classificatory mothers—and thus their daughters (cousins) must be classificatory sisters. A fundamental fact of classificatory kinship systems is that members of a tribal section are structural equivalents. As White (1963*b,* pp. 81–82) notes: "[Every] person in one [section] can agree on the relations of every pair included. Of course I can always agree on how two people are related to each other by putting myself in one of their places as ego, but it is only in a classificatory system that I as ego can group others in exactly the same clusters of equivalence as they do."

For our purposes, a central feature of ideal-typical classificatory kinship systems is that, as a result of the classificatory logic, *the only women that a man may marry are members of the section that provides women to his section.* Showing this requires a complicated algorithm (White 1963*a;* Boyd 1991), but the logic of classificatory kinship makes life simpler. The fundamental problem is knowing who one is to marry. People need some way to figure out where their spouse is coming from. But individuals do not need a mathematical model to do the right thing. They do not even need to understand the global logic. Instead, they only need to follow a normative rule that prescribes the class of spouses they may marry.

In classificatory kinship systems, all men should marry women in the same kinship relation to them; for example, their father's sister's daughter (FZD) and/or their mother's brother's daughter (MBD). There are many different possible systems, and each system defines a different class of eligible spouses. Whatever relations are normatively endorsed, men (or women) can know they are marrying a person in the right relation to them if they are in the right section and are not otherwise prohibited (White 1963*a*). Because the logic of these kinship systems is so consistent, members of a section will be structurally equivalent. Therefore potential wives (from a male's perspective) are (in theory) all members of a unique section. It follows that, if we are to identify the sections in aboriginal societies that exchange women, the core element must be that individuals in each section are, as reported in the kin system, structurally equivalent. For one tribe, I induce such sections and show that cyclic generalized exchange occurs even in the absence of clear normative rules prescribing it.

Social Scarcity and Social Exchange

Why exchange in the first place? The answer emerges by focusing on what is uniquely social about social exchange. I start with Adam Smith. Smith ([1776] 1965, p. 15) argues that men distinguish themselves from other animals through exchange, noting that "it [exchange] is common to all men, and to be found in no other race of animals" and further that "nobody

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

ever saw a dog make a fair and deliberate exchange of one bone for another with another dog." Critics of Smith have already noted that it is reasonable to wonder how dogs would benefit from an exchange of bones, since a fair exchange presumes that the values given and received (in this instance, bones) are the same. Bones are bones. While this appears to be a reasonable criticism, it is naive and misses what is essential to social exchange—that it yields social solidarity. People exchange equivalent values. Dogs do not. Dogs just do not know how to benefit from the exchange of equivalent values. They cannot turn the exchange relation into a role structure. People can, and do.

If dogs could define *their* bones as "bones they cannot chew," an exchange of otherwise equivalent bones would make more sense. A negative proscription, "you may chew others' bones but not yours," induces a positive incentive to exchange one bone for another. Bones that are prevalent locally would become prohibited and therefore scarce. Prohibited (and scarce) values are useful for exchange, especially if all the parties need them. Of course, this is the case with the incest taboo that prohibits "marriage" with some kin relations. The incest taboo requires an exchange, the "gift" of a prohibited relation to another person. Because the values that are exchanged (sisters, brothers-in-law) are not objectively scarce in nature, and therefore need not be exchanged with others in the absence of a prohibition, the incest taboo may be seen as the first truly social or cultural act (Lévi-Strauss 1969). Smith was right, if for the wrong reason. Animals do not exchange values that are equivalent because they cannot prohibit themselves from using the values they have. That takes *thought.*

Men may give classificatory sisters who are prohibited, and therefore of no value to them as marriage partners, up to other men. The gift begs others to exchange their classificatory sisters in return. Yet the incest taboo only insists that men not marry their own "sister"; it does not require the "release" of sisters to other men. If sisters are "released," it is without guidance with respect to which men they should go. If men want a wife, the negative rule (you may not marry people in some kinship relation) insists on exchange but does not positively prescribe a structure through which exchange is to occur. Without a positive prescription, or a norm of reciprocity, givers of sisters have no guarantee that they will become takers of wives. A univocal gift is risky; it is an invitation to exploitation.

A negative norm (the taboo against incest) creates an incentive to exchange but fails to provide individuals or groups with a structure through which exchange can occur. For a structure for exchange to emerge, it is assumed that a positive norm—a norm of reciprocity—or a positive prescription (you may only exchange with persons B) is required. Exchange theorists (Lévi-Strauss 1969; Ekeh 1974; Yamagishi and Cook 1993) dis-

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

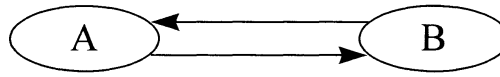

FIG. 1.—Direct (restricted) social exchange

tinguish two forms of exchange: direct (restricted) exchange and indirect (generalized) exchange. Direct, or restricted, exchange is the dyadic exchange of values, a gift given induces a direct reciprocation: a bone for a bone or, perhaps, a spouse for a bone. The key is that dyads exchange values back and forth between themselves; they form an exchange pair. Figure 1 represents this kind of exchange structure.

In indirect, or generalized, exchange, values move in one direction across a network of at least three actors. There are two main forms of generalized exchange. In this article, I focus on one type, "chain" generalized exchange, as distinct from "net" generalized exchange (Ekeh 1974; Sahlins 1965; Uehara 1990; Yamagishi and Cook 1993). "Net" generalized exchange, which involves exchanges between an individual (A) and a group (BCDE), is relatively common and is represented in figure 2. Play groups, carpools, revolving credit associations, and duplicate bridge games in which the players cycle through hosts are all examples. Reviewers of journal articles participate in net generalized exchange systems as well when they submit their own article for review. Chain generalized exchange is qualitatively different, as shown in figure 3. Whereas net generalized exchange can be reduced to direct "person-to-group" dyadic exchanges as in Blau (1964), chain generalized exchange cannot. The key in chain generalized exchange is that values have to flow through all parties in a cycle before a giver can become a taker, that is, receive a gift in return.

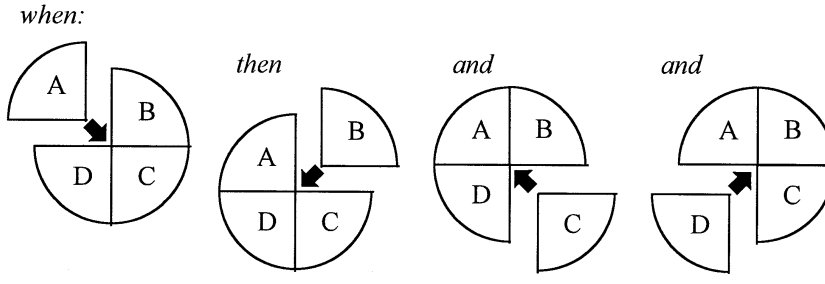

FIG. 2.—Indirect (generalized) social exchange: net form

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

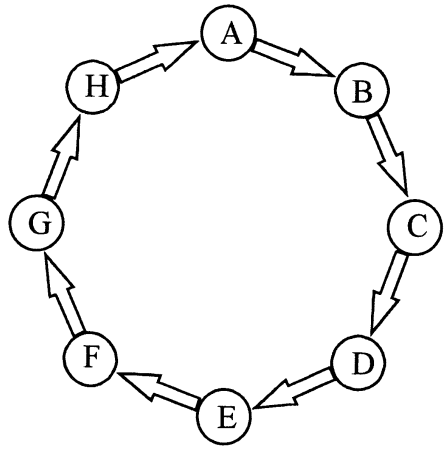

FIG. 3.—Indirect (generalized) social exchange: chain form

The Norm of Reciprocity

Both generalized exchange and restricted exchange rest on a norm of reciprocity: takers are obliged to be givers. In direct dyadic exchange, the norm of reciprocity insists that takers give gifts to those who gave to them. The help I get with an article is a gift I return by an acknowledgment. I give the gift of attendance at a dinner party in exchange for the food the host provides. The norm of reciprocity provides guidance to both parties. Hosts do not provide food for guests who forget to come, and dinner parties would be few if hosts did not exchange food for the social efforts guests expend when they do arrive. Ambiguity over valuation of gifts received and taken may lead to subsequent streams of exchange (Leifer 1988). Dyadic exchanges governed by a norm of reciprocity lock actors into "endless" exchanges, as each alternates occupying giver and taker roles. These roles, and the exchanges within pairs, provide the basis for a weak form of social solidarity.[7]

In chain generalized exchange, the norm of reciprocity insists, as well,

[7] Within dyadic exchange, there will always be some transgressions of the reciprocity norm, but dissonance over the valuation of gifts given and taken rather than true violations of the norm is the central mechanism of exploitation. Others may be cads now and then, but even those who at first glance seem to build careers by transgressing reciprocity norms—grifters and confidence men—rely on them. "Gifts" from confidence men only work when the taken mistakenly think themselves to be takers, creating the irony that exploitation is easier if the norm of reciprocity is adhered to (Leifer 1988; Waller [1937] 1970).

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

that takers give. But they give to someone else. In systems of chain generalized exchange, many of the exploitation possibilities inherent in direct exchange are elided. This is no world for a confidence man. If he succeeds in eliciting a gift (in exchange), it goes elsewhere. Under generalized exchange, where gifts are univocal and givers are always givers, exploitation can take place only if actors explicitly reject the guiding norm of reciprocity. In this case, individuals or subgroups contemplating the exploitation of givers find little room for subtle action and thus face sanction from the entire group whose debt they have failed to repay.

As with restricted exchange, in chain generalized exchange, the norm of reciprocity guides actors to return gifts. But to whom should they give? When exchange involves sisters for wives, the incest taboo alone is no help. It does not positively tell actors who should be the recipient of the returned gift; it only excludes potential receivers. A cyclic system that fixes, for each dyad, giver and taker roles in perpetuity has certain advantages over restricted exchange systems. The role structure induced by cyclic exchange allows for the exchange of equivalent values without ambiguity. Giving is secured by the fact that subtle exploitation across dyadic exchange pairs is impossible. In contrast, restricted exchange provides opportunities for exploitation within pairs of exchange partners because actors on the outside may be largely indifferent to the exchange outcomes they observe. Because, under restricted exchange, self-interest is largely independent of other pairs' exchanges, actors are under no obligation to enforce collective norms. Two things result from this indifference. The first is that exploitation may characterize dyadic exchanges, thereby weakening one party or group by allowing inequalities to emerge between pairs. The second is more troublesome for group solidarity; interacting pairs may cleave away from the whole group, thereby creating a new, and self-sufficient, exchange system.[8]

Generalized exchange systems block these inherent tendencies toward subgroup cleavage. First, each section in the system cares a lot about every exchange. They are all invested in preventing dyadic exploitation. Secondly, in a cycle, there is no endogenous or structural basis for subgroup cleavage. Failing to adhere to the norm of reciprocity drains everyone of a scarce resource and, as a result, "allows the realization of more supple and effective solidarity" (Lévi-Strauss 1969). As a result, generalized exchange systems, once established, should be remarkably robust, for the only threats to their stability are exogenous in nature. Such systems are

[8] Note that exploitation is not a necessary outcome of restricted exchange. Here I simply argue that under certain circumstances (e.g., when group sanctioning mechanisms are weak), restricted exchange may provide a framework from which exploitation occurs.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

presented as ideals, as logical outcomes of normative structures. Nobody really thinks they are real, but if they are, what accounts for them?

CONTEXT, DATA, AND METHODS

Groote Eylandt

In the 1940s, approximately 350 Aborigines lived on Groote Eylandt and neighboring Woodah and Bickerton Islands. Population density was one Aborigine per three square miles, three times the average for mainland aboriginal tribes (Rose 1960). By aboriginal standards, food and water were plentiful. In common with mainland aboriginal tribes, the sexual division of labor was rigid. Prestige and status were based on age and gender. Gerontocracy was pronounced, with older men controlling access to women, ritual knowledge, and material resources. Natives lived in kin-based cooperating groups composed of two or three adult brothers and their dependent wives and children. In two exceptional cases, single-family units lived in isolation from all other groups.

Residence was patrilocal; descent was patrilineal. Groote Eylandt Aborigines recognized 11 sections, loosely associated with locality. Sections were assigned to one of two moieties. Many natives could not correctly identify the section they belonged to (Rose 1960). In addition to section, natives belonged to totemic groups called the "dreamtime." The dreamtime connects individuals together on a different basis than "straight" kinship. The dreamtime is a ritual world; if kinship is economics, dreaming is comparative literature. Assignment of Aborigines to these totemic groups was determined by the mother's geographical location on the island when she publicly acknowledged conception. Since residence was patrilocal, the totem of a child was generally associated with his/her father. Gender, age, section, and totemic group are the only forms of social differentiation—other than kinship—discussed by ethnographers as recognized on Groote Eylandt.

Norms Governing Exchange on Groote Eylandt

The rules governing spouse choice on Groote Eylandt are pretty vague. There are many of them, and they are contradictory. Because of this, different observers have argued that the Groote Eylandt system is similar to many different classificatory kinship systems found in Australia, from the Kariera to the Aranda. The problem is that a single society cannot coherently follow two or more contradictory normative systems at the same time.

For example, there is a norm on Groote Eylandt that men should marry

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

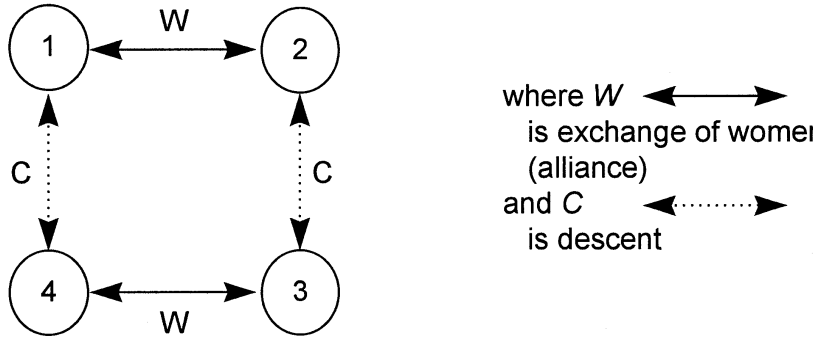

FIG. 4.—Kariera classificatory kinship system

their classificatory cross-cousins, their FZDs (who are also their MBDs). This norm suggests a Kariera system, in which classificatory cousins are exchanged dyadically across pairs of sections. Such a system is represented in figure 4. In the Kariera system, a male in section 1 marries a female in section 2. Their children are assigned to section 4 but reside with their father in section 1. Turning the pair around, a male from section 2 will marry a female from section 1; their children will be assigned to section 3 and will reside in section 2. A Kariera system rests on bilateral cross-cousin marriage with exchange of sisters. There is a lot of ethnographic evidence that the ideal marriage, given Groote Eylandt kinship terminology, would fit a Kariera model. Specifically, Groote Eylandt Aborigines not only do not prohibit FZD marriages, their stated norms endorse them. Furthermore, Worsley (cited in Rose 1960) argues that the "ideal pattern of kinship terminology implies an exchange of sisters." As I show later, while endorsed, such marriages are impossible in practice.

Leaving aside for the moment the norm recommending FZD marriage, Rose (1960), Worsley (as cited in Rose 1960), and Warner (1958) all suggest that other aspects of Groote Eylandt kinship terminology suggest the possibility of an Aranda-like kinship system. Specifically, there is another norm on Groote Eylandt that prescribes distant mother's brother's daughter (MBD) and mother's mother's brother's daughter's daughter (MMBDD) marriages. Such marriages are the basis for an Aranda system. Aranda kinship and descent systems have four lineages (two in each moiety), each divided into alternating-generation subsections that exchange women dyadically. Figure 5 describes the flow of wives across numbered sections (W) and the assignment of children to sections (C) in an Aranda system. For example, men in section 3 marry women in section 1 and women in section 3 marry men in section 1. Looking at the assignment

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

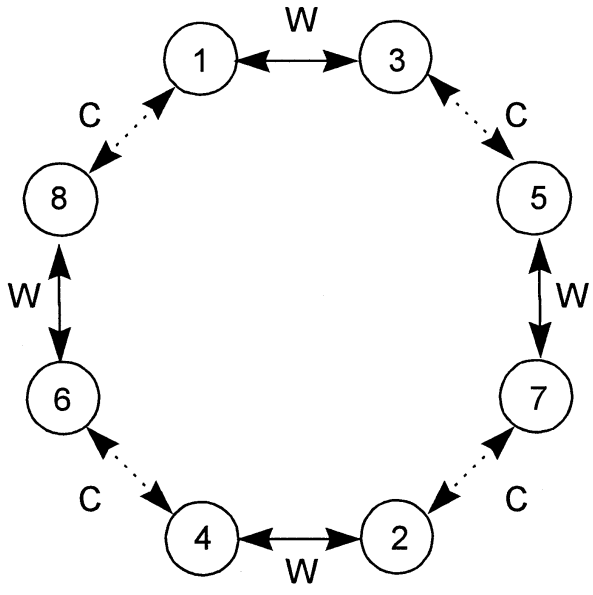

FIG. 5.—Aranda classificatory kinship system

of children (C), the children of a 1F → 3M marriage are assigned to section 5, while the children of a 3F → 1M marriage are assigned to section 8.

In an Aranda system, marriage with one's MMBDD (from a male viewpoint) ensures that the person that an individual is supposed to marry is in the right section. Note that under this system, marriage with one's FZD is prohibited. Therefore, the Aranda norm contradicts the Kariera norm. Both systems cannot work at the same time. Referring to figure 5, one can see that marriages with a FZD would be incorrect, whereas marriages with a MMBDD make the system work.[9]

Because on Groote Eylandt marriage with a male's MMBDD (who is also a distant MBD) is also prescribed, an Aranda system, like a Kariera,

[9] Consider, e.g., a male in section 3 looking for a wife. The normative rules tell him to marry his MMBDD. She is in section 1 because

his M is in section 7;
his MM is in section 4;
his MMD is in section 4;
his MMBD is in section 6; and
his MMBDD is in section 1.

Thus men in section 3 get wives from section 1, in exchange for sisters they gave to section 1 earlier.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

is potentially supported by local norms. But again, *one society cannot be both Kariera and Aranda.* And it gets worse. Other elements of the ethnographically revealed normative structure suggest similarities with other systems, the description of which is beyond the scope of this article. Rose (1960, p. 153) concludes that "the Groote Eylandt kinship system could very easily be described as a Kariera, Aranda, Karadjeri, or possibly even an Ungarinyin type."

Two things are clear from this review of possible systems and their fit with Groote Eylandt kinship norms. The first is that the normative structure governing marriage choices on Groote Eylandt is too vague and contradictory to yield a *single consistent* exchange system. Incompatible systems are simultaneously endorsed, and the result is a hodgepodge.[10] The second is that there is no normative evidence for a cycle of exchange across named sections. Certainly it is hard to see how a system with 11 recognized sections could fit one of these ideal types. The only thing everyone can agree on is that men are prohibited from marrying women in their moiety.

Rose's Ethnographic Data

Kinship data, gathered *prior to detribalization,* is provided in Rose (1960) for 221 of the 350 natives living on Groote Eylandt, a 1,000 square mile island located in the Gulf of Carpenteria, off Northern Arnheim Land, Australia, in the early 1940s.[11] Thirty-two kinship relations—mother, mother's brother, older brother, mother's brother's daughter, sister, and so forth—are uniquely identified. As each relation has a role complement, mother/daughter, older brother/younger brother, accuracy in identifications can be estimated by consistency across pairs. Of all the identifications that were reciprocated, 98% were correct. Over 24,000 relationships (51% of the 48,620 possible) between the 221 persons surveyed were collected. Adults were able to identify and report their relationship to 77% of the Aborigines in the sample.

Rose's methodology was simple and innovative. He took photographs of Aborigines and asked others what they called them, for example, what kinship relation they were in. He collected data only on living Aborigines.

[10] Because groups cannot theoretically follow more than one kinship system at the same time without yielding disorder, it does not really help to argue that order comes from the fact that norms governing marriage choice may operate in some contexts but not others. Of interest are the mechanisms that effectively translate such micro-level "incoherence" into a coherent macrostructure.

[11] Rose fails to discuss selectivity associated with his sample. Missing are young men (10–13 years old), presumably not married, who spent their time in the bush and therefore could not be reached.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

As a result, these data are different than those gathered by more traditional ethnographic methods, which rely on gathering normative information from a few informants. More traditional methods allow natives to articulate ideal images of the kinship system (who one should marry, ignoring actual behavior); Rose's data make possible tests of the fit between the ideal (normative) models of a kinship system and the practical reality of kinship relations as experienced by natives. Rose's kinship data are especially valuable since current research on aboriginal social structure is now complicated by detribalization. Life on Groote Eylandt at the time of Rose's fieldwork was probably very much the same as it was prior to Western contact.

Relations and Aborigines Sampled

The population of interest is the 151 Aborigines on Groote Eylandt who were married or of marriageable age in 1941. For girls, this meant anyone over one year of age. Males typically first married girls aged 1–9 after they were 25 years old. The kin relations of interest for marriage exchange are cross-moiety relations. These are defined by Rose (1960, p. 60) as the "key relationships in the Groote Eylandt system."[12]

Data reporting each aggregate relation were transformed into five 151 $\times$ 151 matrices. These kinship matrices report whether or not an Aborigine is in a specific aggregate relation to another Aborigine. Thus, if an Aborigine in row i calls an Aborigine in column j "mother's brother's daughter" (MBD), a "1" indexes that j is MBD to i. Thus in cell ij, a "1" is reported. These five matrices served as the raw data for subsequent analyses.

[12] The relations selected comprise 20 unique English equivalents, identified below. Each is associated with a unique aboriginal name, e.g., MBD is named *denda* and FZD is named *dabura,* whereas in English we would say "cousin" even though we can distinguish them as FZD and MBD. Likewise, *denda* is also the term for "mother" and *dabura* is the term for "sister's sister." Rose collapses these detailed kin relations into aggregate categories and presents data on the categories of equivalent kinship relations. My models take these kinship data as their central input. These relations are defined by Rose (1960, p. 18) as

1. mother's brother (MB), mother (M), mother's brother's son (MBS), mother's brother's daughter (MBD)
2. mother's mother's brother's daughter's son (MMBDS), mother's mother's brother's daughter's daughter (MMBDD), wife (W), husband's sister (HZ), wife's brother (WB), husband (H)
3. sister's son (ZS), sister's daughter (ZD), father's sister's daughter (FZD), father's sister's son (FZS)
4. father's mother's brother (FMB), father's mother (FM), daughter's daughter (DD), daughter's son (DS)
5. mother's father (MF), mother's father's sister (MFZ)

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

TABLE 1

GROOTE EYLANDT ABORIGINES BY MOIETY: POPULATION AND SAMPLE

SEX	AGE COHORTS (IN YEARS)					
	0–9	10–19	20–29	30–39	40+	Total
Moiety 1:						
Males:						
Population	19	12	10	11	12	64
Sample	0	3	3	7	10	23
Females:						
Population	12	14	7	4	9	46
Sample	11	14	7	4	7	43
Moiety 2:						
Males:						
Population	17	11	10	14	9	61
Sample	0	2	6	13	8	29
Females:						
Population	10	12	9	4	11	46
Sample	7	12	9	4	8	40

Sample Characteristics

The sample of all married Aborigines differs with respect to age and gender composition from the population as a whole, as should be expected. These distributions are reported as frequencies, by moiety, in table 1.[13]

The large number of infant females and the small number of young men in the sample reflect the fact that men marry women who are on average more than 20 years younger than themselves. There are more women than men because of extensive polygamy. As men age, they acquire wives. The average number of wives (per married man) increases from 1.3 for men aged 21–30, to 1.8 for men aged 31–40, and to 2.9 for men aged 41–50 (Rose 1960, p. 69). Since men obtain more wives as they age, it follows logically that women are married polygamously as well. For women in their peak reproductive years (aged 15–28), 83% of their husbands have at least a second wife (Rose 1960, pp. 87, 247–465).

RESULTS

Modeling Groote Eylandt Kinship with Named Sections

In this section, I focus on modeling the pattern of wife exchange across the 11 named marriage sections Rose identifies as present on Groote Ey-

[13] Results reported in the body of the article are restricted to the 135 Aborigines currently married or promised as spouses in 1941.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

landt. The goal is to identify a parsimonious model that captures the observed pattern of exchanges. Tests of different kinds of exchange systems are possible using log-linear models. The relevant modeling context is derived from work on social mobility (Bearman and Deane 1993; Sobel, Hout, and Duncan 1985); blocks (sections of structurally equivalent actors) are treated as classes in a marriage system, and the structure of the flow of women across these classes is the key focus.

I begin with the incest taboo, which requires men to marry women from the opposite moiety. Table 2 reports the mobility of women from origin (rows) to destination (columns) by culturally recognized, or named, section. Consider this mobility as the "gift" of a sister. An inspection of table 2 clearly reveals the presence of an exogamy rule that insists that marriage be with a spouse from the opposite moiety. The consequence of this normative rule is zeros in all within-moiety marriage cells. Since I am searching for structure in exchange beyond a negative prohibition, I treat these zeros as structural rather than sampling zeros in all of the models that follow.[14] Model fits are estimated using GLIM (Baker and Nelder 1978). Given exogamy across moiety, I test whether section of origin carries implications for section of destination. An independence model tests whether the association between origin (as sisters) and destination (as wives) is determined solely by the cross-moiety marginals—in this case, the proportion of persons assigned to one of the 11 sections that natives recognize. Call this a moiety model. A test of the moiety model, which fits a grand mean and the main effect of origin and destination,[15] fits the observed exchanges, yielding a log-likelihood ratio (G^2) of 45.18 with $df = 32$; and $P = .061$. This tells us that there is no deep structure to the pattern of exchange beyond moiety, at least using culturally recognized sections as the exchange units. Ethnographers were right to observe a hodgepodge, for a simple model of exogamous exchanges across moieties provides a satisfactory image of Groote Eylandt social structure, *using their own categories* as exchange sections.[16]

[14] It is possible to fit determined models with structural zeros easily (Lindsey 1989). Note that the degrees of freedom reported for all models are greatly reduced due to the presence of structural zeros.

[15] The equation for the moiety (independence) model (Agresti 1990, eq. [5.2], p. 131) is

$$\log m_{ij} = \mu + \lambda_i + \lambda_j.$$

Since section 8 sent no women, I combined sections 8 and 9 to yield a 10-section system.

[16] Although there is no formal reason to expect that a structure for exchange exists across totemic groups, I tested the same independence model using totems as categories. The model fits exceptionally well ($G^2 = 27.44$; $df = 30$; $P = .6003$). This means

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

Recall that aspects of the Groote Eylandt kinship terminology imply bilateral cross-cousin marriage with exchange of sisters, as does the absence of a prohibition against father's sister's daughter (FZD) marriage. These norms are consistent with a Kariera system, yielding restricted rather than generalized exchange. While there is normative support for sister-exchange marriages, due to demographic constraints, the chance of their occurrence is extremely low.[17] Nor is there any evidence in table 2 that the actual exchanges observed across sections yield an Aranda system, which assumes paired sections. Thus, although both ideal-typical models are suggested by the normative rules, the most we can uncover using culturally recognized sections is a moiety model.

This finding, that the observed structure of exchange, beyond strict adherence to an exogamy rule, does not fit the outcomes of formally prescribed norms, is commonplace. Norms are a model, an ideal. We should not necessarily expect them to be realized in practice. But something beyond exogamy (sidedness) does structure the exchange of women (White and Jorian 1997). In the next section, I go beyond identifying "sidedness" to show that the deep structure of marriage exchange on Groote Eylandt is cyclical across blocks of structurally equivalent actors.

Operationalizing Structural Equivalence

Since it follows that, in classificatory kinship systems, sections that play a role in the social exchange of women are defined by structural equivalence, it should be possible to induce these sections (marriage classes) from a model that partitions the population into blocks of structurally equivalent actors. Blockmodeling (White, Boorman, and Brieger 1976; Boorman and White 1976; Burt 1980) is one method for generating structural equivalence in a social network. The basic strategy in blockmodeling is to induce a partition of a social network, where nodes are aggregated into blocks on the basis of similar patterns of relations. This aggregation of

---

that there is no structure to the exchange of women across totems beyond exogamy by moiety.

[17] As Rose notes (1960, p. 177), "If exchange marriage were possible then in the ideal case we would expect that a girl of about nine years is married to a man about 34 and that girl of nine years has a full brother aged 34 years who receives as wife the first man's full sister also aged 9 years." Homans's (1962) argument that matrilateral cross-cousin marriage occurs more frequently than patrilateral cross-cousin marriage in patrilineal systems because of the positive sentimental ties a male has to his mother's brother cannot be right. The problems are demographic. First, under a gerontocratic social system, the male who is to marry his father's sister's daughter (FZD) when she reaches puberty has probably not yet been conceived. Second, even if he were born, his FZD is likely to be his classificatory mother (Rose 1960, pp. 120–23). On this basis we can reject a Kariera model.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

TABLE 2

THE EXCHANGE OF WOMEN ACROSS NAMED SECTIONS

	DESTINATION										
	Moiety 1					Moiety 2					
ORIGIN	1	2	3	4	5	6	7	8	9	10	11
1. Djaragba	−0	−0	−0	−0	−0	3	2	0	0	0	0
2. Anwurugurigba	−0	−0	−0	−0	−0	8	1	0	2	0	0
3. Jadigba	−0	−0	−0	−0	−0	5	0	0	2	0	0
4. Badalumba	−0	−0	−0	−0	−0	4	0	2	2	2	1
5. Bickerton Island 1	−0	−0	−0	−0	−0	1	0	0	4	0	2
6. Dalimbo	2	3	1	5	8	−0	−0	−0	−0	−0	−0
7. Amagula (Woodah Island)	0	0	0	1	3	−0	−0	−0	−0	−0	−0
8. Umbakumba*	0	0	0	0	0	−0	−0	−0	−0	−0	−0
9. Bickerton Island 2	1	0	0	0	3	−0	−0	−0	−0	−0	−0
10. Amulanwa	0	0	1	1	0	−0	−0	−0	−0	−0	−0
11. Bickerton Island 3	0	2	0	3	3	−0	−0	−0	−0	−0	−0

NOTE.—Structural zeros are reported as "−0." Three residents of Rose River are married to residents of Groote Eylandt. They are not part of Groote Eylandt's section system and have been omitted from this table.

* Section 8 has no married women members.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

structurally equivalent actors into blocks means that actors have homogeneous internal relations and homogeneous external relations with others, for all relations considered simultaneously (Wasserman and Faust 1995).

The blockmodel output is an homomorphic reduction of the raw network data, referred to as an image matrix. A blockmodel shows how patterns of social relations in a population bind nodes into structurally equivalent bundles. Consider blocks as positions and an image matrix a model of a network of positions. This model is a model of social structure—but it is empirically grounded. In theory, the blockmodel is a pure distillation of the more complex social structure it represents. Since our social identities are shaped by the positions we occupy, a blockmodel is interpreted as an identity array generated from patterns of social ties linking persons in a social network.

The five aggregated kinship matrices were stacked on top of one another, to form a 755×151 matrix. CONCOR, a commonly used blockmodeling algorithm, was used to partition the stacked matrix (White et al. 1976). The first partition of the matrix yielded moiety, as expected. Three further partitions for each moiety yielded eight blocks, four in each moiety.[18]

After running the CONCOR algorithm, all Aborigines were assigned to one of eight blocks. All block members share moiety but are otherwise heterogeneous with respect to demographic characteristics and culturally recognized categories. Other than moiety, the cultural categories that are recognized by natives (section, age, gender, totem) are neither statistically nor substantively associated with block membership. Equivalence is thus not derived from shared categorical attributes. Below I focus on the structure of exchange (mobility) of women across blocks.

The Structure of Exchange across Blocks

In theory, blocks of structural equivalents could function as sections in an exchange system, even if—as is the case here—these sections are culturally unnamed. On Groote Eylandt, there are no words that describe the induced blocks in the marriage exchange system, and therefore these blocks, while culturally constructed, cannot be culturally recognized. They neither fit the named sections nor the totems of Groote society. Earlier, I showed that native prescriptive norms governing marriage choice could never sustain a generalized exchange system. Yet such a system

[18] The cutoff used was relatively strict (.95). Correlations were computed on columns only, since 98% of all relations were symmetric. In other models, I attempted to yield the 11 section system that was recognized by the Aborigines on Groote Eylandt, but no partition reproduced their categories.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

TABLE 3

EXCHANGE OF WOMEN ACROSS BLOCKS

	DESTINATION							
	Moiety 1				Moiety 2			
ORIGIN	1	5	4	8	7	2	6	3
1	−0	−0	−0	−0	7	3	0	0
5	−0	−0	−0	−0	0	9	0	0
4	−0	−0	−0	−0	0	1	9	0
8	−0	−0	−0	−0	1	0	2	11
7	1	5	0	0	−0	−0	−0	−0
2	4	0	11	2	−0	−0	−0	−0
6	0	0	0	7	−0	−0	−0	−0
3	9	0	0	1	−0	−0	−0	−0

NOTE.—Structural zeros are reported as "−0."

emerges from practical behavior. Below, I show that natives manage kinship relations under the watchful eyes of a constraint imposed by the operation of generalized exchange, even though their tribal norms do not demand such a constraint.

Table 3 reports the mobility of women from origins (as sisters) to destinations (as wives) across the induced blocks, or marriage classes. Recall the unusual tabular structure from table 2, which placed structural zeros in the cells corresponding to within-moiety marriages. This tabular structure is replicated here.

Table 4 reports log-likelihood ratios (G^2), degrees of freedom, and P values for models of the pattern of spouse choice across blocks. Following the logic of the section-to-section models, I begin by testing a moiety (independence) model. However, this model does not fit the observed data and can clearly be rejected ($G^2 = 158.1$; $df = 18$; $P < .001$). The exchange of women across blocks is not random; this means that, unlike the section-by-section model, there is structure in the pattern of exchange beyond exogamy by moiety.

In an attempt to uncover this structure, I test all possible patterns of pair exchange (quasi-symmetry models) to see if either a Kariera or an Aranda structure fits the observed data.[19] Recall that some norms on

[19] The equation for the sister exchange (quasi-symmetry) model (Agresti 1990, p. 354, eq. [10.11]) is

$$\log m_{ij} = \mu + \lambda_i^X + \lambda_j^Y + \lambda_{ij}^{XY},$$

where $\lambda_{ij}^{XY} = 1$, when i and j are paired, and $\lambda_{ij}^{XY} = 0$ for all other values of i and j.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

TABLE 4

MODELS OF THE STRUCTURE OF EXCHANGE OF WOMEN ACROSS BLOCKS

Model	G^2	*df*	*P*
Independence (random association)	158.1	18	0.00
Paired dyadic exchange		14	
1/5; 2/6; 3/7; 4/8	180.3		0.00
1/5; 2/7; 3/8; 4/6	144.5		0.00
1/5; 2/8; 3/6; 4/7	150.2		0.00
1/5; 2/6; 3/8; 4/7	254.8		0.00
1/5; 2/7; 3/6; 4/8	129.2		0.00
1/5; 2/8; 3/7; 4/6	139.6		0.00
1/6; 2/7; 3/8; 4/5	155.7		0.00
1/6; 2/7; 3/5; 4/8	122.4		0.00
1/6; 2/8; 3/7; 4/5	149.5		0.00
1/6; 2/8; 3/5; 5/7	122.0		0.00
1/6; 2/5; 4/7; 4/8	170.5		0.00
1/6; 2/5; 3/8; 4/7	133.9		0.00
1/7; 2/8; 3/5; 4/6	104.5		0.00
1/7; 2/8; 3/6; 4/8	121.2		0.00
1/7; 2/5; 3/8; 4/6	118.1		0.00
1/7; 2/5; 3/6; 4/8	127.5		0.00
1/7; 2/6; 3/8; 4/5	135.9		0.00
1/7; 2/6; 3/5; 4/8	128.4		0.00
1/8; 2/5; 3/6; 4/7	120.4		0.00
1/8; 2/5; 3/7; 4/6	123.9		0.00
1/8; 2/6; 3/7; 4/5	128.1		0.00
1/8; 2/6; 3/5; 4/7	142.7		0.00
1/8; 2/7; 3/6; 4/5	118.9		0.00
1/8; 2/7; 3/5; 4/6	111.3		0.00
Generalized exchange (cyclic)	5.8	10	0.59

Groote Eylandt suggested the possibility of a Kariera or Aranda system, although the section-by-section exchange pattern did not show evidence of either system. Dyadic sister-exchange marriage insists on a symmetry such that, if women from block 1 go to men in block 7, then women in block 7 should go to men in block 1. An eight-block partition yields 24 possible cross-moiety block pairings, none of which fit the data ($P < .001$ for all pairs). These models are reported in table 4. There is no evidence that dyadic exchange of women occurs across blocks of structural equivalents: marriage on Groote Eylandt is neither governed by a Kariera nor an Aranda system.

Inspection of table 3 clearly shows that the structure of marriage across blocks on Groote Eylandt is a cycle. This cycle is represented in figure 6.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

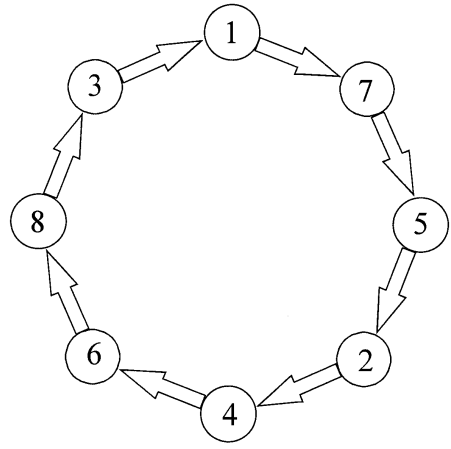

FIG. 6.—The exchange of women across blocks

It is possible to capture this cycle with a model that tests for the presence of generalized exchange. The generalized exchange model is a log-linear model that fits one additional parameter to the random association model to represent cyclic exchange. It is a quasi-independence model in which the marginals and cells corresponding to the cycle are fitted uniquely. The model posits no association among rows and columns for the remaining cells. This model is similar to the "topological" model introduced by Hauser (1978), which fits the contours of a mobility table. Viewed this way, the "contours" are the cells identified as receivers and givers under generalized exchange.[20] This model fits the data extremely well ($G^2 = 5.8$; $df = 10$; $P = .59$). The improvement of the model fit over the independence and paired sister-exchange models is tremendous: the model reflecting chain generalized exchange accounts for most of the total association between origins as "sisters" and destinations as "wives."

Inconsistent Relations

There are some clear inconsistencies in the exchange pattern reported in table 3. Four women from block 2 (moiety 2), marry a male in block 1,

[20] The equation for the quasi-independence model (Agresti 1990, p. 132, eq. [5.4]) is

$$\log m_{ij} = \mu + \lambda_i^X + \lambda_j^Y + \lambda_{ij}^{XY},$$

where $\lambda_{ij}^{XY} = 1$, when $i = 1, j = 5$; $i = 2, j = 6$; $i = 3, j = 7$; $i = 4, j = 8$; $i = 5, j = 2$; $i = 6, j = 3$; $i = 7, j = 4$; $i = 8, j = 1$; and $\lambda_{ij}^{XY} = 0$ for all other values of i and j.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

where, in order to yield a perfect cycle, the "correct" marriages ought to be with males in block 4. These four women are married to one male (identified numerically as #81) reported by Rose (1960, pp. 84, 80) as "by no means sure of his position and [he] apparently lived in daily fear that he would lose the girls, a fact which was apparently responsible for his living in virtual isolation." While #81's marriages (the result of stealing wives from male #46) did not violate stated norms (all were called "O," or wife), clearly they were perceived to be incorrect by natives. My model suggests why #81 was so uncomfortable.

Likewise, one of the two exchanges from block 8 to block 6 (where the "correct" exchange should have been to block 3) involved a woman (#68) whose husband (#168) was murdered by another Aborigine (#154) as he attempted to steal her. Rose notes that #168 called #68 "daughter's daughter" before she was stolen by #154. Subsequently, #154 was tried by ordeal for killing #168. This trial seems to have involved most of the males on the island and consisted of their throwing their spears at #154 while he stood facing them, unarmed, a short distance away on the beach.[21] That #154 survived was an unlikely outcome in a community of skilled spear hunters, unless community sentiment was on his side. While not prohibited, the marriage between #168 and #68 was exceptional and was "not looked on particularly favorably by the society as there was considerable feeling favoring #154 when he killed #168 in 1943 for 'wrongly' marrying #68" (Rose 1960, p. 149). My model shows that the marriage between #168 and #68 was incorrect. Natives "knew" this even though it violated no culturally stated norms.[22]

[21] Rose shows photographs of armed Aborigines facing #154 on the beach but does not describe the "trial." I conclude that the ordeal must consist of their using their spears.

[22] Clearly, as my *AJS* reviewers have pointed out, these marriages violated unstated "norms." Aborigine #81 was uncomfortable, yet he made marriage choices that were allowed. Likewise, #168's marriage to #68, while formally acceptable, was clearly considered "improper." Two things are happening. First, natives' understanding of local (unarticulated) rules appears in conflict with their formal (articulated) global rules. Second, natives collectively enforce unarticulated rules, even though they do not have the language to articulate them. These kinds of asymmetries between local norms and global rules are frequently observed. Here, by analogy, our understanding of microlevel (local) rules tells us that it is impolite to invite acquaintances over for dinner one day after having dinner at their house, even though inviting them over does not violate the global rule, which is to reciprocate invitations. I show below that a number of micromechanisms can provide the bases for local knowledge, which, when followed, are sufficient to generate the observed macrostructure. Note that in the Kula exchange, natives recognize the global structure explicitly and ignore local errors, as do we when, e.g., we account for promotions within firms as exceptionally sensitive to meritocratic criteria. Note also that there are other inconsistencies from the pure model of cyclic exchange, e.g., the "incorrect" association between a woman

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

If the exchanges that can be explained from the ethnographic accounts are removed from table 3, the generalized exchange model, as expected, fits much better, accounting for most of the association between origins and destinations. Whether one works with the "corrected" table or the original data, it is clear that a system of cyclic exchange occurs between unrecognized blocks of the tribe. This system ensures solidarity by binding all members into a chain of univocal prestations, embedding each block in a network of debt and obligation.

Implications for Classical Kinship Theory

Aborigines who are blocked together because they share structurally equivalent patterns of kinship relations appear to be members of culturally unrecognized sections that participate in a system of generalized exchange. These induced sections have no connection to the cultural bases for social identity on Groote Eylandt; age and sex, section, or totemic group.[23] Still, they function as subsections of an elaborate exchange system in an underground economy of kinship. Implications of this finding are discussed below.

Discovering a generalized exchange system among real people in the absence of explicit cultural support is problematic for classical kinship theory. Little in the Groote Eylandt culture suggests, or points toward, generalized exchange. Ethnographers trained to see rules missed it even while natives enforced it. Ethnographers were absolutely right to see a formal mess, since models of the recognized normative grammar of Groote Eylandt kinship suggest that there was no clear structure *for* exchange—beyond that provided by the negative incest taboo (which yields exogamy by moiety). But it was precisely by focusing on natives' norms and prescriptions that classical exchange theorists were able to develop models of social exchange as a basis for human social solidarity. By far the most important setting for these theoretical efforts has been classificatory kinship systems, which have provided the grist for some classical models of human action, from both an individualist (Homans 1962) and structuralist (Lévi-Strauss 1969) perspective.

---

in block 3 (#149) and a man in block 8 (#7), which cannot be specifically accounted for from Rose's ethnographic report.

[23] Alone this is an intriguing finding that reminds us that the promise of the network approach to social structure was that it might provide a metric to estimate the salience of cultural categories for tangible behavior. Often the validity of network results are based on overlap with categories. In this case, the validity of the blockmodel rests on the fact that CONCOR induced an exchange structure, which had only a prior theoretical justification. In this way, structural network analysis can be a tool for theory construction.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

While neither the structuralist nor the individualist perspective completely works to account for the findings of this article, both Homans (associated with the individualist perspective) and Lévi-Strauss (associated with the structuralist perspective) point somewhat in the right direction. Homans was right when he recognized that norms do not matter as much as practical behavior. Likewise, his recognition that a stable macrostructure for exchange is likely to be the product of stable micro-level mechanisms is one that I am extremely sympathetic to and develop further below. On the other hand, his account of MBD over FZD marriage (preference) in classificatory kinship systems is falsified by the Groote Eylandt case, since Homans's micromodel, built from dyadic exchange alone, explicitly rejects the possibility of what we can observe—indirect, or chain generalized exchange. Exchanges in which giver and taker roles do not alternate within dyads cannot be analyzed as an aberrant form of direct dyadic exchange. Nor can other micromechanisms governing marriage choice, for example, familiarity, play a significant role in structuring exchange outcomes when the culturally recognized exchange units—section, totemic group, and locality—appear as independent of the observed structure. In light of these findings, Homans's theory does not provide a plausible explanation of the actual exchange pattern observed on Groote Eylandt.

Lévi-Strauss fares better than Homans. On one hand, I find an exchange system—chain generalized exchange—that he predicts *should* exist. More striking, Lévi-Strauss's prediction that generalized exchange occurs in harmonic regimes (systems with both patrilineal descent and patrilocal residence) is supported by the results of this analysis. This is significant since the linkage of disharmonic regimes with restricted exchange and harmonic regimes with cyclical exchange is absolutely central to Lévi-Strauss's argument in *Elementary Structures of Kinship.* It is a terrific achievement in science to predict *from theoretical grounds alone* a fact only later observed.

On the other hand, discovering generalized exchange where it is not normatively prescribed creates some significant dilemmas for the Lévi-Straussian argument. All societies prohibit incest, but few prescribe that men must marry women who are in a given relation to them. This is what classificatory kinship systems do. In section systems, it is the kinship terminology that defines the marriage rules and thus the principle of reciprocity (indirect or direct) that governs the society (Korn 1973, p. 15). On Groote Eylandt, chain generalized exchange occurs when these basic normative elements of the kinship system are muddled, contradictory, and incoherent. This should not happen, at least theoretically.

In *Elementary Structures of Kinship,* Lévi-Strauss (1969, p. 45) shows that "the woman whom one does not take, and whom one may not take

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

is for that very reason, offered up." People do distinguish themselves from dogs and other animals by prohibiting the use of their own values, inducing social scarcity, and forcing themselves to place values in circulation. This is a stunning cultural achievement, and so exchange does rest on the fundamental opposition between nature and culture. But the mere fact of an opposition between nature and culture tells us nothing about the social structure through which values, a bone here or a spouse there, are actually exchanged to yield coherent role relations between persons or groups. For Lévi-Strauss, coherent exchange systems must be built from positive norms governing the circulation of values that extend beyond the negative incest taboo. Because we are able to observe generalized exchange in the absence of such norms on Groote Eylandt, there is little support for the central idea that structures *for* exchange are also necessarily cultural achievements.[24]

In sum, Lévi-Strauss predicted the right thing (generalized exchange) for the wrong reason (normative rules). Homans was right (culturally stated rules do not matter, and local choice governed by some micromechanism does) for the wrong reason (indirect exchange does occur). I take what is right from both and, combining them, argue that there must be some set of nonnormative, yet "cultural" micromechanisms at play that are capable of generating indirect exchange. Discussing these mechanisms is the next goal. The relevant literature focuses on models that can account for emergent structures.

Emergent Structures

For generalized exchange to occur in the absence of positive prescriptions, there must be one or more micromechanisms acting on individuals to guide their choice of a spouse with sufficient clarity to yield a consistent exchange system. Because neither formal accounts of the system nor chance events adequately tell us how practical behavior is routinely structured, it must be the case that the consistent operation of a micromechanism yields the emergent structure I observe.[25]

[24] Note that the problem is not the lack of fit between culturally recognized sections and the induced blocks yielded from the analysis of Groote Eylandt relational data, for Lévi-Strauss recognizes that natives cannot always name the units that exchange wives beyond the level of moiety. Rather, the problem is the lack of fit between stated norms governing exchange, which do not yield a cycle, and the observed exchange pattern, which is a cycle.

[25] We can manage to avoid accounting for emergent structures by enumerating the chance events whose coupling made it possible. Of course, amazing conjunctures of events and processes may yield robust structures as their products, but as explanation they stretch the limits of parsimony. Consider White's (1992, p. 243) characterization of the structuralist conjecture: "The structuralist conjecture is . . . illustrated by Lévi-

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

By emergent structures I mean informal structures of interaction that, while unintended and unnamed, are still robust, lasting well beyond the experience of any single individual or interacting population of persons in the cross section. In settings closer to home than Groote Eylandt, we are familiar with emergent structures of this kind: vacancy chains governing promotion opportunities in firms (White 1970; Chase 1991), balanced opposition and ranked strata-systems in high schools and the stability of clique structures within adolescent society (Coleman 1963; Davis 1967, 1970), marginality in informal social networks (Romo 1991), and so forth.[26] We generally observe that these emergent structures within densely interconnected complex organizations, like firms, high schools, and kinship systems, are frequently orthogonal to those posited by norms or cultural representations of underlying processes (Chase 1991; Kontopoulos 1993). Informal structures tend to cut across formal grids (Mayer 1960; White 1992). It should, therefore, be expected that, if we identify an emergent structure organizing spouse choice among Aborigines, it would cut across formal, normatively endorsed, expectations.

Many possible micromotives and micromechanisms have been proposed to explain emergent structures (for reviews, see Kontopoulos 1993; White 1992; Chase 1997). The micromechanism operating on Groote Eylandt must channel individual action into an observable exchange structure at the macro level. There is not much to work with on Groote Eylandt, aside from kinship relations. There is no ethnicity. Inequality is embedded within the kinship system. Beyond moiety, the extent of social differentiation is limited. Classificatory kinship insists that everyone get their kinship relations into line, so that they know who they are. They have to do it consistently since changes in a single relation will reverberate wildly throughout the system, ultimately involving all group members.

Strauss's theory (1969) of marriage alliances in which the whole social organization of a tribe plays out within one of a few overall structuralist schemes of balancing among splits and alliances. Genesis is always the problem. . . . [By] what staggeringly unlikely concatenation of constituents did some such marvelously singular system of integration come into being?" Demographic constraint, chance encounters with new people peddling new ways of doing things, gerontocracy, the possibility of exchange cycles of other values circulating across persons or sections, etc., could all contribute in some unknown way to the appearance of generalized exchange on Groote Eylandt. Maybe an airplane full of trinkets landed, introducing a new currency and setting into motion a new exchange system. Who knows? It could have been this way. But, like native spouse choice, the problem with this style of explanation is ultimately about preserving degrees of freedom.

[26] This is because people who are trying to get things done and solve substantive problems, such as whom to marry, whom to talk to in the school cafeteria, or who to line up behind in order to get a promotion, cannot afford to take normative self-representations seriously as guides for action. So they do not.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

Therefore, the mechanisms have to work on kinship relations, that is, on what Aborigines call one another. The mechanisms have to reflect practical interactions and be tied to practical behavior.

There is evidence that such a practical culture exists in opposition to those formal rules that natives articulate. Consider, for example, Rose's (1960, p. 142) argument that, on Groote Eylandt, "the usual Murngin method of reckoning kin does not always operate within the clan, for, when there have been wrong marriages, the practice of tracing descent through the mother and ignoring the father does not function. This keeps the kinship position of offspring of such a marriage adjusted to the organization of his group." If kinship does not line up the right way, the natives account for kin relations in a new way, thus adjusting, on the fly, the relational structure within the clan, and consequently, beyond it. The extent of local adjustment is significant: roughly 20% of all relationships observed by Rose had changed by the time of Worsley's fieldwork, just a few years later.[27]

I now turn to the identification of possible microlevel sources of cyclic exchange, focusing first on identifying operators that work to reproduce existing cyclic exchange structures, and second, on identifying operators that may be tied to the generation of such systems. The obvious starting points are two social-psychological theories that posit a clear relationship between microlevel behavior and macrostructure: rational choice and balance theory.

Rational Choice and the Reproduction of Exchange Cycles

In an important article, Yamagishi and Cook (1993) show that, in experimental situations, actors in exchange cycles corresponding to a perfect system of chain generalized exchange will cooperate with others by offering univocal exchanges in expectation of subsequent cooperation of others in the cycle. Yamagishi and Cook (1993) show that cyclic exchange structures similar to that observed on Groote Eylandt assume the form of an *N*-person assurance game and are thus extremely robust, since it is always in each individual's interest to cooperate (by exchanging) rather than to defect (by refusing to place values into circulation). They thus establish that rational action is consistent with continued cooperation in cyclic exchange structures. Once established, cyclic exchange structures are self-reproducing from the rational actions of individual participants.

An especially important aspect of Yamagishi and Cook's (1993) experimental findings is that actors in an exchange cycle need not recognize the

[27] Personal correspondence with Douglas White, May 1996.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

macrostructure in which they are embedded, in order to act strategically by cooperating through univocal exchange. The local views they have of the system (focused only on the receiving and sending pair) are sufficient to block free riding in a context of familiarity and trust. Local rationality can thus catenate exchanges into a robust global structure independent of cultural norms.

While rational choice can provide a plausible micromechanism for the reproduction of cyclic exchange structures, it cannot help us understand the etiology of such systems, for "strategic action" as a micromotor can yield any number of different social exchange structures.[28] Beyond this, cooperation, which generates trust as its by-product, is only rational in a context of mutual trust. Climbing out of this circle from within rational choice is not easy. What is needed is a dynamic model capable of accounting for the evolutionary emergence of cooperation across multiple iterations (Macy 1991; Kim and Bearman 1997).

Balance Theory and the Reproduction of Exchange Cycles

Rational choice theory is consistent with cyclic exchange once a cycle is produced. Perhaps not surprisingly, balance theory, which states that individuals (or interacting family units, as seen here) will structure their social relations with other actors in order to avoid cognitive dissonance (Davis 1970; Wasserman and Faust 1995), is also consistent with a pure exchange cycle. Given a cycle of size N, it follows definitionally that all of the constituent triads embedded in the cycle will balance. More strikingly, the preservation of balance across all N-sections of an exchange cycle is sufficient to prevent subgroup cleavage, as well as other forms of individual free riding. As long as each actor in the cycle locally adjusts his or her kinship relations to fit those within their moiety, they will jointly yield a macrostructure that reproduces the initial cycle. As with rational choice, actors may, but need not, see the macrostructure in order to achieve this. All that is required is the ability to organize one's within-moiety kin relations consistently. The exercise of balance at the local level—making sure, for example, that the person one calls "brother" calls one's sisters "sister," and one's mother "mother," and so forth—yields the reproduction of an existing exchange cycle.

[28] See, e.g., the work of numerous exchange theorists who show how different games yield different rational strategies and hence outcomes. It is worth noting here that, despite implicit claims to the contrary, one cannot infer microlevel strategies from observed outcomes, as multiple strategies that are rational within a single game can often yield the same outcome. Granovetter (1978) identified the same problem in his analysis of threshold models in collective action contexts.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

On the other hand, as with rational choice, balance across the relevant sections of a kinship system does not have to yield a pure exchange cycle as a macrostructure. Thus, for example, both Aranda and Kariera kinship systems are locally balanced, yet neither yields a cycle similar to that identified in this article. Cycles are thus necessarily balanced, but balance does not provide by itself—any more than does rational choice—the sufficient condition for the generation of a pure exchange cycle. Neither micromotor by itself helps make sense of how such systems emerged.

The Etiology of Cyclic Exchange

Neither balance nor rational choice alone provides a plausible and efficient mechanism for the evolution of trust and cooperative behavior necessary to generate an exchange cycle. Although both, once in place, provide an efficient micromechanism for the reproduction of an exchange cycle. How do cycles get started, then? One idea is that kinship cycles emerge out of a gerontocratic social structure.

In a brilliant article, "The Matrilateral Implications of Structural Cross-Cousin Marriage," Hammel (1973, p. 145) shows that, "independent of motivations, preferences, culture, symbols, or ideology," a subtle nonkinship age bias in the selection of spouses carries huge implications for the kinship systems that emerge. Specifically, Hammel demonstrates from simulation models of over 14,000 marriages that the mean age bias between spouses is strongly correlated (.79) with a matrilateral bias (here, MBD over FZD marriage) in cross-cousin marriages. Just focusing on societies in which the mean age difference between spouses is 10 years or greater, Hammel shows that on average, the matrilateral bias is .67. Furthermore, Hammel (1976, p. 164) notes that "an increase of one year in the mean absolute age bias increases the proportion of matrilateral skewing by 2 percent." Recall that the mean age difference between spouses on Groote Eylandt is strikingly large, averaging 18 years for women in moiety 1 and 17.5 years for women in moiety 2. Such age biases (with 24–27-year-old men marrying girls aged 0–1 year old) are the product of pronounced gerontocracy. Hammel demonstrates, and Rose confirms, that such age biases may generate a substantial matrilateral bias, itself a necessary component of a cyclic exchange system. Consider, in this light, Lévi-Strauss's (1969, p. 194) comment that "to claim, as Leach does, that a system of matrilateral marriage is not necessarily circular . . . is the same as asserting that a cyclist who kept the handle-bars of his bicycle turned in the same direction would not go round in a circle. . . . For a matrilateral system to be totally devoid of circularity, the number of 'local lines' would have to be infinite." Cultures need not recognize the impact of age skewing on marriage choices explicitly. On Groote Eylandt, all they

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

have to do, for example, is adjust such choices to the local kinship system, either by following the demands of local balance or by participating in a "strategic game" of rational alliance formation.

Why Generalized Exchange?

All exchange systems yield solidarity as their by-product, as they embed actors in chains of mutual obligation and debt. But different systems provide different levels of solidarity. In direct dyadic exchange, exploitation can occur because of the norm of reciprocity. Skilled actors build on ambiguity over valuation in exchange and thereby profit from within the exchange relation. Those exploited by reciprocity norms may appeal to the group for redress, but other actors may be indifferent to exchange outcomes among other pairs and therefore fail to sanction the exploiter.[29] The inherent tendency in restricted exchange systems is toward increased inequality and differentiation between and within exchange pairs. Beyond this, the structure of a society bound together by dyadic exchange is at risk of subgroup cleavages. Thus the roots of endogenous change processes lie *within* restricted exchange systems. These processes heighten social differentiation on bases other than kinship and hence fuel their own breakdown.

In chain generalized exchange, on the other hand, where roles as giver and taker are fixed at the dyadic level, exploitation *within* exchange guided by the norm of reciprocity is limited. Equals exchange, and only a violation of reciprocity norms allows exchangers to obtain more values. Since these violations affect all actors equally, social solidarity is protected from subgroup cleavage and free riding, yielding a more secure form of social solidarity.[30] A macrolevel structure of chain generalized exchange, crafted from microlevel behaviors that reproduce balance, build social solidarity and trust, and serve individual as well as group interests, can presumably last for ages. Such structures appear immune to endogenous

[29] Note that, since bilateral exchange among sections is less an exchange between two individuals than between two groups, members of a group contemplating exploitation may be put under pressure from within their own group to conform. This kind of internal governance mitigates against pressures from within the exchange relation pushing toward subgroup cleavage. I am indebted to an *AJS* reviewer for raising this point.

[30] It might appear that in cyclic exchange, if block A sends women to block B, and block B to block C, and block C to block D, the failure of block D to send women to block A affects only block A (since A is then a net loser of women). But, D's failure to send women to A ultimately affects B, C, and D, since A lacks the means to send women in subsequent generations. Therefore, all actors are affected equally when the temporal order of exchange is ignored.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

sources of change. Change, when it is observed, is likely to come from an exogenous shock. No wonder we found generalized exchange in a "primitive" society insulated from the chaotic events of modern life occurring beyond its borders. But we should not be too heartbroken by modernity's path, for it is not simply ironic that the most elegant structural systems for group cohesion seem to appear in social systems dominated by familiar structures of inequality (gerontocracy and patriarchy), which stand in an uneasy relation to our own (modern) normative claims.

REFERENCES

Agresti, Alan. 1990. *Categorical Data Analysis.* New York: Wiley.

Baker, R. J., and N. A. Nelder. 1978. *The GLIM System, Release 3.* Oxford: Numerical Algorithms Group.

Bearman, Peter, and Glenn Deane. 1993. "The Structure of Opportunity: Middle-Class Mobility in England, 1548–1689." *American Journal of Sociology* 98:30–66.

Blau, Peter. 1964. *Exchange and Power in Social Life.* New York: Wiley.

Boorman, Scott, and Harrison White. 1976. "Social Structure from Multiple Networks. II. Role Structures." *American Journal of Sociology* 81:1384–1447.

Boyd, John P. 1991. *Social Semigroups: A Unified Theory of Scaling and Blockmodelling as Applied to Social Networks.* Fairfax, Va.: George Mason University Press.

Burt, Ronald. 1980. "Models of Network Structure." *Annual Review of Sociology* 6: 79–141.

Chase, Ivan. 1991. "Vacancy Chains." *Annual Review of Sociology* 17:133–54.

———. 1997. *The Emergence of Order in Human and Animal Behavior.* Cambridge, Mass.: Harvard University Press, in press.

Coleman, James. 1963. *The Adolescent Society.* New York: Free Press.

Davis, James A. 1967. "Clustering and Hierarchy in Interpersonal Relations." *American Sociological Review* 35:843–52.

———. 1970. "Clustering and Structural Balance in Graphs." *Human Relations* 20: 181–87.

Ekeh, Peter P. 1974. *Social Exchange Theory: The Two Traditions.* Cambridge, Mass.: Harvard University Press.

Granovetter, Mark. 1978. "Threshold Models of Collective Behavior." *American Journal of Sociology* 83:1420–43.

Hammel, Eugene A. 1973. "The Matrilateral Implications of Structural Cross-Cousin Marriage." Pp. 145–68 in *Demographic Anthropology: Quantitative Approaches,* edited by Ezra B. Zubrow. Albuquerque: University of New Mexico Press.

Hauser, Robert. 1978. "A Structural Model of the Mobility Table." *Social Forces* 56: 919–53.

Homans, George. 1962. *Sentiments and Activities: Essays in Social Science.* New York: Free Press.

Kim, HyoJoung, and Peter Bearman. 1997. "Who Counts in Collective Action? The Structure and Dynamics of Movement Participation." *American Sociological Review,* in press.

Kontopoulos, Kyriakos M. 1993. *The Logics of Social Structure.* Cambridge: Cambridge University Press.

Korn, Francis. 1973. *Elementary Structures Reconsidered: Lévi-Strauss on Kinship.* Berkeley and Los Angeles: University of California Press.

Leifer, Eric. 1988. "Interaction Preludes to Role Setting: Exploratory Local Action." *American Sociological Review* 53:865–78.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions

Lévi-Strauss, Claude. 1963. *Structural Anthropology.* New York: Basic.
———. 1969. *The Elementary Structures of Kinship.* Boston: Beacon Press.
Lindsey, James L. 1989. *The Analysis of Categorical Data Using GLIM.* New York: Springer-Verlag.
Macy, Michael. 1991. "Chains of Cooperation: Threshold Effects in Collective Action." *American Sociological Review* 56:730–47.
Mayer, Adrian. 1960. *Caste and Kinship in Central India.* Berkeley and Los Angeles: University of California Press.
Meggitt, M. J. 1962. *Desert People: A Study of the Walbiri Aborigines of Central Australia.* Sidney: Angus & Robertson.
Romo, Frank. 1991. "The Omega Phenomena: A Study of Social Choice." Working paper. Institute for Social Analysis, State University of New York, Stony Brook.
Rose, Frederick. 1960. *Classification of Kin, Age Structure, and Marriage amongst the Groote Eylandt Aborigines: A Study in Method and a Theory of Australian Kinship.* Berlin: Academie-Verlag.
Sahlins, Marshall. 1965. *Essays in Economic Anthropology.* Seattle: University of Washington Press.
Smith, Adam. (1776) 1965. *An Inquiry into the Nature and Causes of the Wealth of Nations.* New York: Modern Library.
Sobel, Michael W., Michael Hout, and Otis Dudley Duncan. 1985. "Exchange, Structure and Symmetry in Occupational Mobility." *American Journal of Sociology* 91: 359–72.
Uehara, Edwina. 1990. "Dual Exchange Theory: Social Networks and Informal Social Support." *American Journal of Sociology* 96:521–57.
Waller, Willard. (1937) 1970. "The Rating and Dating Complex." Pp. 169–81 in *On the Family, Education, and War,* edited by William J. Goode, Frank Furstenberg, and Larry Mitchell. Chicago: University of Chicago Press.
Warner, W. Lloyd. 1958. *A Black Civilization: A Social Study of an Australian Tribe.* New York: Harper.
Wasserman, Stanley, and Katharine Faust. 1995. *Social Networks.* Cambridge: Cambridge University Press.
White, Douglas, and Paul Jorian. 1997. "Kinship Networks and Discrete Structure Theory: Applications and Implications." *Social Networks,* in press.
White, Harrison. 1963*a*. *An Anatomy of Kinship.* Englewood Cliffs, N.J.: Prentice-Hall.
———. 1963*b*. "Uses of Mathematics in Sociology." Pp. 77–94 in *Mathematics and the Social Sciences: The Utility and Inutility of Mathematics in the Study of Economics, Political Science, and Sociology,* edited by J. C. Charlesworth. Lancaster, Pa.: American Academy of Political and Social Science.
———. 1970. *Chains of Opportunity.* Cambridge, Mass.: Harvard University Press.
———. 1992. *Identity and Control.* Princeton, N.J.: Princeton University Press.
White, Harrison, S. A. Boorman, and R. L. Breiger. 1976. "Social Structure from Multiple Networks. I. Blockmodels of Roles and Positions." *American Journal of Sociology* 81:730–80.
Worsley, Peter. 1968. *The Trumpet Shall Sound: A Study of "Cargo" Cults in Melanesia.* New York: Schocken.
Yamagishi, Toshio, and Karen Cook. 1993. "Generalized Exchange and Social Dilemmas." *Social Psychological Quarterly* 56 (4): 235–48.
Ziegler, Rolf. 1990. "The Kula: Social Order, Barter, and Ceremonial Exchange." Pp. 141–70 in *Social Institutions: Their Emergence, Maintenance, and Effects,* edited by Michael Hechter, Karl-Dieter Opp, and Reinhard Wippler. New York: Aldine de Gruyter.

This content downloaded from 128.59.161.126 on Fri, 13 Feb 2015 15:05:57 PM
All use subject to JSTOR Terms and Conditions